



US008213167B2

(12) **United States Patent**
Kim

(10) **Patent No.:** **US 8,213,167 B2**
(45) **Date of Patent:** **Jul. 3, 2012**

(54) **PORTABLE DISPLAY DEVICE**

(76) Inventor: **Si-Han Kim**, Kyunggi-Do (KR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **12/498,656**

(22) Filed: **Jul. 7, 2009**

(65) **Prior Publication Data**

US 2010/0053858 A1 Mar. 4, 2010

Related U.S. Application Data

(62) Division of application No. 11/915,392, filed as application No. PCT/KR2005/001634 on Jun. 1, 2005, now Pat. No. 7,570,483.

(51) **Int. Cl.**
G06F 1/16 (2006.01)
G06F 3/038 (2006.01)
G09G 5/00 (2006.01)

(52) **U.S. Cl.** **361/679.26**; 361/679.3; 345/1.1; 345/1.3; 345/204; 345/205

(58) **Field of Classification Search** 345/1.1, 345/1.3, 206, 94, 98–100, 103, 204–205, 345/901; 361/679.27, 679.01–679.07, 679.21–679.3, 361/749, 679.55, 679.56; 349/58
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,731,854 A * 3/1998 Kishida 349/40
6,262,785 B1 * 7/2001 Kim 349/58
6,483,482 B1 * 11/2002 Kim 345/3.1
6,643,124 B1 11/2003 Wilk 361/681
6,970,210 B2 11/2005 Kim et al.

7,032,984 B2 4/2006 Kim et al.
7,365,704 B2 * 4/2008 Wang et al. 345/1.2
7,414,594 B2 8/2008 Kim et al.
2003/0142250 A1 * 7/2003 Kawahara et al. 349/96
2003/0189759 A1 * 10/2003 Kim et al. 359/619
2004/0036818 A1 * 2/2004 Kim et al. 349/58
2004/0135738 A1 7/2004 Kim et al. 345/1.1
2005/0219807 A1 * 10/2005 Kim 361/681

FOREIGN PATENT DOCUMENTS

KR 10-1999-0078832 11/1999
KR 10-2000-0039480 7/2000
KR 10-2000-0039481 7/2000

(Continued)

OTHER PUBLICATIONS

Office Action of related U.S. Appl. No. 11/915,392, filed Nov. 26, 2007; 10 pages.

(Continued)

Primary Examiner — Jayprakash N Gandhi

Assistant Examiner — Nidhi Desai

(74) *Attorney, Agent, or Firm* — Stein McEwen, LLP

(57) **ABSTRACT**

The present invention is directed to a portable display device having at least two display elements, at least two foldable panel housings for receiving and supporting the display elements circuit boards and other parts, respectively, and optical elements provided on the top surface of the one of the side walls of the panel housings and mounted in a joint portion of the display elements, wherein one of the sidewalls of the panel housings are cut to form openings or a connecting joint portion, and the sidewalls of the optical elements is adjacently disposed each other when the panel housings are unfolded. The portable display device allows a single large sized screen, and whereby a joint portion between the two display panels as non-display area may be minimized.

11 Claims, 12 Drawing Sheets

